IN THE CLAIMS:

Please examine claims 1-17 found on the Amended Pages attached to the International Preliminary Report on Patentability.

The following is a complete listing of claims in this application.

1. (original) A semiconductor structure with active zones in the form of a multi-wavelength diode that emits or absorbs a defined number of light wavelengths, such as a light-emitting diode or photodiode (10, 16, 24, 26, 36, 46, 54, 68, 74, 80), comprising a substrate (SUB) with at least two active zones (AZ1 - AZn), each of which emits or absorbs radiation of a different wavelength, a first (lower) active zone AZ1 being grown on a surface of the substrate (SUB),

at least one additional (upper) active zone (AZ1 - AZn) being epitaxially grown, and the active zones (AZ1 - AZn) being serially connected from the lower active zone (AZ1) to the upper active zone (AZn) via at least one dividing layer (TD1 - TDn) that serves as a low-impedance resistor, the dividing layer (TD1 - TDn) being designed as a reciprocally polar np or pn junction in the form of an isolation diode or tunnel diode, between the lower active zone (AZ1) and the upper active zone (AZn) one or more additional active zones (AZn) being epitaxially grown, the lowest active zone (AZ1) having a low energetic band gap and each of the subsequent active zones (AZ2 - AZn) having a higher energetic band gap than a previous active zone, and the semiconductor materials used for growing or epitaxing the isolation diodes or tunnel diodes (TD) either having an indirect band junction or an energetic band gap, which in each case is somewhat higher than the semiconductor materials that are used beneath it,

characterized in that an absorption layer (AbsS) having

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the same material as the pn layer of the active zone (AZn) is grown on an active zone (AZn).

2. (original) A semiconductor structure with active zones in the form of a multi-wavelength diode that emits or absorbs a defined number of light wavelengths, such as a light-emitting diode or photodiode (10, 16, 24, 26, 36, 46, 54, 68, 74, 80), comprising a substrate (SUB) with at least two active zones (AZ1 - AZn), each of which emits or absorbs radiation of a different wavelength, a first (lower) active zone AZ1 is grown on a surface of the substrate (SUB), at least one additional (upper) active zone (AZ1 - AZn) is epitaxially grown, and the active zones (AZ1 - AZn) are serially connected from the lower active zone (AZ1) to the upper active zone (AZn) via at least one dividing layer (TD1 - TDn) that serves as a low-impedance resistor, wherein between the lower active zone (AZ1) and the upper active zone (AZn) one or more additional active zones (AZn) is epitaxially grown, the lowest active zone (AZ1) has a low energetic band gap, each of the subsequent active zones (AZ2 - AZn) has a higher energetic band gap than a previous active zone, and the dividing layer (TD1 - TDn) is designed as a metallic contact (K),

characterized in that an absorption layer (AbsS) having the same material as the pn layer of the active zone (AZn) is grown on an active zone (AZn).

3. (currently amended) A semiconductor structure with active zones according to Claim 1 ~~or 2~~, characterized in that the material of the substrate (SUB) is GaAs, Ge, InP, GaSb, GaP, InAs, Si, SiGe, SiC, SiGe: C, sapphire, or diamond.

4. (currently amended) A semiconductor structure with active zones according to ~~at least one of the preceding claims~~ claim 1, characterized in that the material of the active zones (AZ1 - AZn) is or contains one or more of the following

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materials: GaAs, GaInP (suitable compositions), AlGaAs (many suitable compositions), GaInAs (suitable compositions), AlInGaP (many suitable compositions), GaAsN, GaN, GaInN, InN, GaInAlN (suitable compositions), GaAlSb, GaInAlSb, CdTe, MgSe, MgS, 6HSiC, ZnTe, CgSe, GaAsSb, GaSb, InAsN, 4H-SiC, *a* - Sn, BN, BP, BAs, AlN, ZnO, ZnS, ZnSe, CdSe, CdTe, HgS, HgSe, PbS, PbSe, PbTe, HgTe, HgCdTe, CdS, ZnSe, InSb, AlP, AlAs, AlSb, InAs and/or AlSb.

5. (currently amended) A semiconductor structure with active zones according to ~~at least one of the preceding claims~~ claim 1, characterized in that a band emission diode (16) has the following structure:

- a GaAs or Ge substrate (SUB)
- a GaAs diode (AZ1) (lower diode) grown on the substrate,
- on top of this, in alternating sequence, an isolation diode grown on the GaAs diode (AZ1), such as a GaInP isolation diode (TD) or an AlGaAs isolation diode (TD1 … TDn), followed by a GaInP diode (AZ3) or AlGaAs diode (AZ3-AZn) grown on the isolation diode,

the band emission range being defined in that the number of diodes (AZ1 - AZn) and the number and the width of the peaks define a coincident light emission range as it could not be achieved with a single peak, thus a resulting emission range is created.

6. (currently amended) A semiconductor structure with active zones according to at least ~~at least one of the preceding claims~~ claim 1, characterized in that each of the individual active zones (AZ1 - AZn) is equipped with its own metallic contact (K) for connection to a connecting lead.

7. (currently amended) A semiconductor structure with active zones according to ~~at least one of the preceding claims~~

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claim 1, characterized in that a blended-color LED (26) (brown) has the following structure:

- a GaA or Ge substrate (SUB),
- a lower active zone (AZ1) made, for example, of GaInP (or AlGaInP), grown on the substrate,
- a first isolation diode (TD1) made of GaInP or AlGaInP, grown on the lower active zone,
- a center active zone (AZ2) made of AlInGaP, grown on the isolation diode,
- a second isolation diode (TD2) and
- an upper active zone (AZ3) made of AlInGaP, grown on the second isolation diode.

8. (currently amended) A semiconductor structure with active zones according to ~~at least one of the preceding claims~~ claim 1, characterized in that a blended-color LED (36) has the following structure:

- a GaAa or Ge substrate (SUB),
- a lower active zone (AZ1) grown on the substrate, followed by two additional active zones (AZ2 - AZn), between which a tunnel diode (TD1 - TDn) is arranged, and the upper active zone (AZn) having a metallic contact (K) for connection with an electrical terminal.

9. (currently amended) A semiconductor structure with active zones according to ~~at least one of the preceding claims~~ claim 1, characterized in that the metal contact (K, BK, LK) arranged between the active zones (AZ1 - AZn) is glued, soldered, pressed, bonded or welded.

10. (currently amended) A semiconductor structure with active zones according to ~~at least one of the preceding claims~~ claim 1, characterized in that the lower active zone (AZ1) is made of an AlInGaP material having a wavelength of approximately 620 nm, in that the center active zone (AZ2) is

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made of an AlInGaP semiconductor material having a wavelength of approximately 550 nm, and in that the upper active zone (AZ3) is made of a GaInN semiconductor material having a wavelength ranging from approximately 400 to 450 nm.

11. (currently amended) A semiconductor structure with active zones according to ~~at least one of the preceding claims~~ claim 1, characterized in that an uppermost active zone (AZn) has a contact (BK) such as a bond contact.

12. (currently amended) A semiconductor structure with active zones according to at least one of the preceding claims, characterized in that the semiconductor structure (46) with the active zones (AZ1 - AZn, PD1 - PDn) is a blended-color sensor, the active zones (PD1 - PDn) being designed as photodiodes, and incident blended-color light being selectively absorbable in the associated active zones, from which a generated current can be selectively tapped.

13. (currently amended) A semiconductor structure with active zones according to ~~at least one of the preceding claims~~ claim 1, characterized in that the blended-color sensor (46) has the following structure:

- a GaAs or a Ge substrate (SUB), on the underside of which a metallic contact (K) is applied or grown, and on the upper surface of which a GaInP or AlInGaP photodiode (PD1) is applied or grown,
- on the photodiode an np isolation diode (TD1) made of an AlInGaP, AlGaAs, or GaInP material is applied,
- a second pn-junction made of an AlInGaP photodiode (PD2),
- an np isolation diode (TD2) and
- a third pn-junction is designed as the GaAlN or AlGaInN photodiode (PD3).

14. (currently amended) A semiconductor structure with

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active zones according to ~~at least one of the preceding claims~~ claim 1, characterized in that the first photodiode (PD1) lies within a wavelength of l = 600 nm to 680 nm, in that the center photodiode (PD2) lies within a wavelength of l = 550 nm, and in that the third photodiode (PD3) lies within a wavelength of l = 400 nm to 450 nm.

15. (currently amended) A semiconductor structure with active zones according to at least one of the preceding claims, characterized in that each of the light-detecting photodiodes (PD1 - PDn) is equipped with a metallic contact (K) for connection to an electric terminal.

16. (currently amended) A semiconductor structure with active zones according to ~~at least one of the preceding claims~~ claim 1, characterized in that the semiconductor structure with the active zones, such as a light-emitting diode or photodiode, forms a colored display (80).

17. (currently amended) A semiconductor structure with active zones according to ~~at least one of the preceding claims~~ claim 1, characterized in that the colored display (80) is formed from a plurality of light-emitting semiconductor devices (82) according to at least one of claims 1 through 17, one pixel (82) of the colored display (80) corresponding to a light-emitting semiconductor device, and each pixel (82) and the corresponding colors being selectively activated.

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